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UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,309	01/10/2002	David A. Boas	A34927 - 069225.0110	1298

21003	7590	07/28/2004

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EXAMINER
ROSENBERGER, RICHARD A

ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO 90C (Rev 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/045,309	BOAS ET AL.
	Examiner	Art Unit	
	Richard A Rosenberger	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-137_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-13,16-18,23-39,42-45,48-59,65-71,75-88,91-93,103-124 and 128-137_ is/are rejected.

7) ☐ Claim(s) _14,15,19-22,40,41,46,47,60-64,72-74,89,90,94-102 and 125-127_ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as
> set forth in section 102 of this title, if the differences between the subject matter sought to be
> patented and the prior art are such that the subject matter as a whole would have been obvious at
> the time the invention was made to a person having ordinary skill in the art to which said subject
> matter pertains. Patentability shall not be negatived by the manner in which the invention was
> made.

2.   Claims 1-13, 16-18, 23-39, 42-45, 48-59, 65-71, 75-88, 91-93, 103-124. and

128-137 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al

(US 6,516,209).

Cheng et al shows a method and system for determining the distributions of

one of more properties in an absorbing and highly scattering medium (see the

abstract, lines 1-4). Optical radiation is directed into the medium and radiation

exiting the medium is received and detected. The system is "self-calibrating", that

is, one or more calibration factors (the baseline discussed in the abstract, lines 16-

19) is derived, and, as it is not known prior to the measurement, is a variable. One

or more optical properties of the medium are derived using the received and

detected radiation and the calibration factors, and the distribution in the medium is

determined therefrom. Obtaining a distribution form the measuring data is solving

an inverse problem.

The baseline inherently will include the relevant factors including the source

and detector coupling and location factors. Those in the art can, using only ordinary

skill in the art, choose particular wavelengths and geometries appropriate for the

measurement being performed; the reference mentions the use of near infra-red (column 9, lines 26-29). Displaying the images obtained is at least obvious.

The reference discusses calculations; writing and storing a program on a computer readable medium to have a computer perform the calculations would have been obvious.
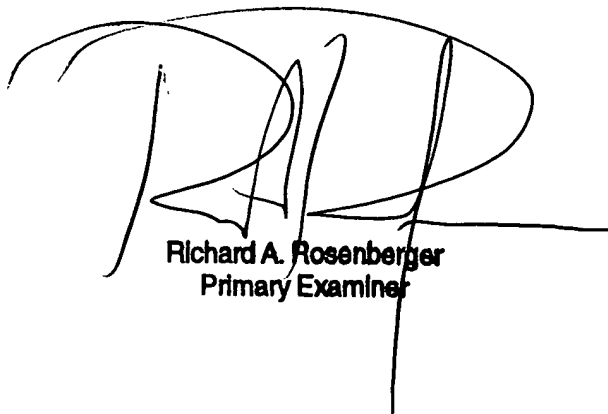
3.   The reference does not appear to teach or suggest the use of obtaining both the amplitude and phase of radiation exiting the medium, nor both the intensity and temporal delay of the radiation exiting the medium; thus claims 14, 15, 40, 41, 89 and 90 appear to contain allowable subject matter. The reference does not appear to teach the minimization of the least squares difference between theory and measurements using a Rytov or born approximations; thus claims 19-22, 46, 47, 60-64, 72-74, 94-102 and 125-127 appear to contain allowable subject matter. These claims are all objected to as being dependent from unallowed parent claims, but would be allowable if rewritten in independent form including all of the limitations of their respective parent claims.

4.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A Rosenberger whose telephone number is (571) 272-2428. The examiner can normally be reached on Monday through Friday during the hours of 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2059. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the
Patent Application Information Retrieval (PAIR) system. Status information for
published applications may be obtained from either Private PAIR or Public PAIR.
Status information for unpublished applications is available through Private PAIR
only. For more information about the PAIR system, see http://pair-direct.uspto.gov.
Should you have questions on access to the Private PAIR system, contact the
Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. A. Rosenberger
22 July 2004

Richard A. Rosenberger
Primary Examiner